REMARKS

The present application includes pending claims 1-20, all of which have been rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent No. 6,398,733 (Simopoulos) in view of United States Patent No. 5,471,990 (Thirsk). The Applicant respectfully traverses this rejection at least for the reasons discussed below.

Simopoulos discloses a medical ultrasonic imaging system that "uses an adaptive multi-dimensional back-end mapping stage to eliminate loss of information in the back-end, minimize any back-end quantization noise, reduce or eliminate electronic noise, and map the local average of soft tissue to a target display value throughout the image." *See* Simopoulos at Abstract. The system of Simopoulos "uses the mean noise level and the identified regions of soft tissue to both locally and adaptively set various back-end mapping stages, including the gain and dynamic range." *Id.*

Simopoulos uses a low pass filer to filter a noise frame. *See id.* at column 4, lines 23-25 ("This noise frame can then be filtered with a low pass filter in the estimator 20 in order to generate the local noise mean...."). Additionally, "an SNR-adaptive spatial and temporal persistence filter can be interposed between the summer 24 and the mapping stage 26." *Id.* at column 5, line 65 to column 6, line 1. "This filter can be used to reduce noise for input values with low SNR, without giving up temporal or spatial resolution for input signal with sufficient SNR." *Id.* at column 6, lines 1-3.

Simopoulos also discloses filters with respect to Figure 9, as shown below:

> As shown in FIG. 9, the noise frame processor 30 in this embodiment includes a low pass filter 40 and a decimator 42, and the processor 30 generate a measure of average electronic noise at various location distributed throughout

> the frame.... The low pass filter 40 smoothes the noise frame, and the decimator 42 decimates the filtered noise to a coarser grid, measuring for example 50 pixels on a side.

Id. at column 7, lines 42-50.

> The soft tissue processor 32 includes a low pass filter 44 and a decimator 46 that are preferably identical to the corresponding elements of the noise processor 30. The filtered, decimated noise frame from the noise processor is summed with negative polarity with the filtered, decimated image frame in a summer 54. Since the noise frame and the image frame are in this example post-detection, post compression signals, the summation performed by the summer 54 generates an output signal equal to the signal to noise ratio (SNR) for the associated region of the two frame. This SNR signal is applied to a comparator 56 that generates as an output an SNR binary image.

Id. at column 7, lines 51-64.

> Thus, the SNR binary image identifies regions of the image frame that have a sufficiently high SNR to be candidates for soft tissue image signals.

Id. at column 8, lines 2-4.

Simopoulus also discloses using filtered, decimated image frames to compute soft tissue intensity. *See id.* at column 9, lines 9-15. Simopolous, however, does not teach, nor suggest, "processing filtered input power data to produce a set of time-gain, compensation data," as recited in claim 1 of the present application, or "a time-gain compensation processor for processing said set of mean input power data into a set of time-gain compensation data," as recited in claim 11 of the present application.

While Thirsk discloses a wall filter 20, it does not teach, nor suggest "processing filtered input power data to produce a set of time-gain, compensation data," as recited in claim 1 of the present application, or "a time-gain compensation processor for processing said set of mean input power data into a set of time-gain compensation data," as recited in claim 11 of the present application. Because neither Simopoulos or Thirsk teach these limitations, the combination of Simopoulos and Thirsk also cannot teach them. Thus, the Applicant respectfully submits that the claims of the present application should be in condition for allowance, at least for this reason.

The Applicant notes that in order for a *prima facie* case of obviousness to be established, the Manual of Patent Examining Procedure (MPEP) states the following:

> First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine the teaching. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art.

See MPEP MPEP § 2142. Additionally, if a *prima facie* case of obviousness is not established, the Applicant is under no obligation to submit evidence of nonobviousness.

> The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness.

See id. The Applicant respectfully submits that the Office Action has not established a *prima facie case* of obviousness, at least for the reasons discussed above.

Further, the Office Action generalizes and makes broad statements to reject particular limitations recited in the claims (particularly with respect to the dependent claims). The Office Action, however, does not seem to explain how these generalizations apply to the specific limitations in the claims.

As but one example, the Office Action states "Simopoulos et al operates in dB, see col. 8, line 45 for example. (Claim 13). " Office Action at page 4. Claim 13, however, recites the following:

> a front end gain adjustment processor converting values of average time-gain compensation data in said set of average time-gain compensation data to decibel average time-gain compensation data values,
>
> wherein said decibel average time-gain compensation data values are in decibel format.

In general, the Office Action seemingly makes broad, general statements to conclude that the claims of the present application are obvious. The Office Action is unclear as to how the sweeping generalizations recited in the Office Action are used to reject the particular limitations recited in the claims. As such, if the rejections are maintained, the Applicant respectfully requests clarification regarding these rejections (e.g., explanations as to how particular citations are relevant to the specific claim language).

The Applicant respectfully submits that the claims of the present application should be allowable at least for the reasons discussed above. If the Examiner has any questions or the Applicant can be of any assistance, the Examiner is invited to contact the undersigned at the number listed below. No fee is believed due with respect to this

Response. The Commissioner, however, is authorized to charge any necessary fees or credit any overpayment to Account No. 07-0845.

Respectfully submitted,

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